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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,599	03/31/2004	Gansha Wu	42339-198432	4361

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EXAMINER	
FIEGLE, RYAN PAUL	
ART UNIT	**PAPER NUMBER**
2183	

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/813,599	WU ET AL.	
	Examiner	**Art Unit**	
	Ryan P. Fiegle	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/10/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The following is taken from the MPEP §2106; the most pertinent parts have been bolded:

> Claim terms are presumed to have the ordinary and customary meanings attributed to them by those of ordinary skill in the art. Sunrace Roots Enter. Co. v. SRAM Corp., 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1298, 67 USPQ2d 1132, 1136 (Fed. Cir. 2003)("In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art.") **However, an applicant is entitled to be his or her own lexicographer and may rebut the presumption that claim terms are to be given their ordinary and customary meaning by clearly setting forth a definition of the term that is different from its ordinary and customary meaning.** See In re Paulsen, 30 F.3d 1475, 1480, 31 USPQ2d 1671, 1674 (Fed. Cir. 1994) >and Vitronics Corp. v. Conceptronic Inc., 90 F.3d 1576, 1582, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996)<. **Where an explicit definition is provided by the applicant for a term, that definition will control interpretation of the term as it is used in the claim.** Toro Co. v. White Consolidated Industries Inc., 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999) (meaning of words used in a claim is not construed in a "lexicographic vacuum, but in the context of the specification and drawings."). Any special meaning assigned to a term "must be sufficiently clear in the specification that any departure from common usage would be so understood by a person of experience in the field of the invention." Multiform Desiccants Inc. v. Medzam Ltd., 133 F.3d 1473, 1477, 45 USPQ2d 1429, 1432 (Fed. Cir. 1998). See also MPEP § 2111.01. If the applicant asserts that a term has a meaning that conflicts with the term's art-accepted meaning, Office personnel should encourage the applicant to amend the claim to better reflect what applicant intends to claim as the invention. If the application becomes a patent, it becomes prior art against subsequent applications. Therefore, it is important for later search purposes to have the patentee employ commonly accepted terminology, particularly for searching text-searchable databases.
>
> Office personnel must always remember to use the perspective of one of ordinary skill in the art. Claims and disclosures are not to be evaluated in a vacuum. If elements of an invention are well known in the art, the applicant does not have to provide a disclosure that describes those elements. In such a case the elements will be construed as encompassing any and every art-recognized hardware or combination of hardware and software technique for implementing the defined requisite functionalities.
>
> **Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure.** In re Morris, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). **Limitations appearing in the specification but not recited in the claim are not read into the claim.** E-Pass Techs., Inc. v. 3Com Corp., 343 F.3d 1364, 1369, 67 USPQ2d 1947, 1950 (Fed. Cir. 2003) (claims must be interpreted "in view of the specification" without importing limitations from the specification into the claims unnecessarily). In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969). See also In re Zletz, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.... The reason is simply that during patent prosecution when claims can be amended, ambiguities should be recognized, scope and breadth of language explored, and clarification imposed.... An essential purpose of patent examination is to fashion

claims that are precise, clear, correct, and unambiguous. Only in this way can uncertainties of claim scope be removed, as much as possible, during the administrative process.").

Though the applicant is entitled to be their own lexicographer, an ***explicit*** definition must be provided within the disclosure to be brought into the claims. An example of an explicit definition is as follows, "as used herein, the term 'scheduling information' includes updated dependency information, ready status regarding waiting instructions, and destination tags for scheduled instructions (sometimes referred to herein as 'scheduling status')."

The applicant has failed to explicitly define the terms listed in the previous office action. Because correction is not required, the objection to the claims is withdrawn; however, therefore, it is the responsibility of the examiner to take the broadest reasonable interpretation of these terms.

2. Further, the term, "shared execution code" is added to this list of terms. The specification does not make clear what this term means. For example, what is the code being shared with?

3. The amendment to the title is gratefully acknowledged and accepted.

4. The amendment to the specification to provide antecedent basis for "computer accessible medium" is acknowledged and accepted. The examiner confirms that the amendment raises no new matter issues.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Lindwer (US Patent 6,298,434).

3. As per claim 1:

A method to execute an instruction on an operand stack, the method comprising:

performing a stack-state-aware translation of the instruction to threaded code to determine an operand stack state for the instruction (column 11, lines 3-22) (the preprocessor moves items from registers to memory and adjusts the SP for the instructions);

dispatching the instruction according to the operand stack state for the instruction (inherent); and

executing the instruction (inherent).

4. As per claim 2:

The method according to claim 1, said performing comprising:

determining a number of operands on the operand stack before the instruction is executed (column 11, lines 3-22) (It is inherent that this step will be taken in moving items from registers to memory and adjusting the SP for the instructions);

determining a number of operands on the operand stack after the instruction is executed based on a number of operands that the instruction consumes and a number of operands that the instruction produces (column 11, lines 3-22); and

inferring a number of shift operations required after execution of the instruction to maintain top-of-stack elements (column 11, lines 3-22).

5. As per claim 3:

The method according to claim 2, wherein the number of shift operations required after execution of the instruction is based on the number of operands on the operand stack before the instruction is executed and the number of operands on the operand stack after the instruction is executed (column 11, lines 15-22).

6. As per claim 4:

The method according to claim 2, wherein the number of shift operations required after execution of the instruction is inferred based on a static lookup table (column 6, lines 39-47) (The translation is based on a static table. Through the table, it is known how many operands will be used and how many will be placed back on the stack, and based on that is how many items are transferred to memory.).

7. As per claim 5:

The method according to claim 1, wherein the operand stack is a mixed-register stack (column 11, lines 15-22).

8. As per claim 6:

The method according to claim 1, wherein the operand stack state comprises a number of shift operations to maintain top-of-stack elements of the operand stack after the execution of the instruction (column 11, lines 15-22).

9. As per claim 7:

The method according to claim 6, wherein the top-of-stack elements comprise a register stack (column 11, lines 15-22).

10. As per claim 8:

The method according to claim 1, further comprising:

refilling the operand stack (column 11, lines 15-22) (The items are moved based on what will be overwritten, meaning that values pushed on the stack from the routine will refill the register part of the stack.).

11. As per claim 9:

A system comprising:

an operand stack to execute an instruction (column 11, lines 3-5); and

an interpreter to determine a state of the operand stack, translate the instruction into threaded code, and dispatch the instruction based on the state of the operand stack (column 11, lines 3-22) (the preprocessor is the interpreter).

12. As per claim 10:

The system according to claim 9, wherein the operand stack is a mixed stack comprising a register stack and a memory stack (column 11, lines 15-22).

13. As per claim 11:

The system according to claim 10, wherein the register stack comprises at least one register to hold at least one respective top element of the stack and the memory stack comprises a contiguous memory region to hold the remaining elements of the operand stack (column 3, lines 15-22).

14. As per claim 12:

A machine accessible medium containing program instructions that, when executed by a processor, cause the processor to perform a series of operations comprising:

translating a virtual machine instruction into threaded code based on an operand stack state of the virtual machine instruction (column 11, lines 3-22);

dispatching the virtual machine instruction according to the operand stack state (inherent); and

executing the instruction (inherent).

15. As per claim 13:

The machine accessible medium according to claim 12, wherein the threaded code is based on an entry point into shared execution code (column 11, lines 3-22) (it is an entry into a subroutine).

16. As per claim 14:

The machine accessible medium according to claim 12, further containing program instructions that, when executed by the processor cause the processor to perform further operations comprising:

determining a number of operands that are present on an operand stack at a time before the virtual machine instruction is executed (column 11, lines 3-22) (It is inherent that this step will be taken in moving items from registers to memory and adjusting the SP for the instructions);

determining a number of operands that are present on the operand stack at a time after the virtual machine instruction is executed (column 3, lines 3-22); and

inferring a number of shift operations required to maintain top-of-stack elements after the virtual machine instruction is executed (column 3, lines 3-22).

17. As per claim 15:

The machine accessible medium according to claim 13, wherein the wherein the number of shift operations required after execution of the instruction is based on the number of operands present on the operand stack at a time before the instruction is executed and the number of operands present on the operand stack at a time after the instruction is executed (column 11, lines 15-22).

18. As per claim 16:

The machine accessible medium according to claim 13, wherein the number of shift operations required after execution of the instruction is inferred based on a static lookup table (column 6, lines 39-47) (The translation is based on a static table. Through the table, it is known how many operands will be used and how many will be placed back on the stack, and based on that is how many items are transferred to memory.).

19. As per claim 17:

The machine accessible medium according to claim 12, wherein the operand stack state comprises a number of shift operations to maintain top-of-stack elements of an operand stack after execution of the virtual machine instruction (column 11, lines 15-22).

20. As per claim 18:

The machine accessible medium according to claim 17, wherein the top-of-stack elements comprise a register stack (column 11, lines 15-22).

21. As per claim 19:

The machine accessible medium according to claim 12, further containing program instructions that, when executed by the processor cause the processor to perform further operations comprising:

execute a number of shift operations to replace top-of-stack elements to an operand stack (column 11, lines 15-22) (The items are moved based on what will be overwritten, meaning that values pushed on the stack from the routine will refill the register part of the stack.).

22. As per claim 20:

The machine accessible medium according to claim 19, wherein the number of shift operations is based on a number of elements on the operand stack that are consumed by the virtual machine instruction and a number of elements that are produced by the virtual machine instruction (column 11, lines 15-22) (The items are moved based on what will be overwritten, meaning that values pushed on the stack from the routine will refill the register part of the stack.).

23. As per claims 21-23:

Claims 21-23 teach the claims of 1, 9 and 12 respectively where an entry point into the shared execution mode is made based on the stack state (column 5, lines 16-40).

Response to Arguments

24. The applicant has made the following argument:

> "However, nowhere in this portion of Lindwer have Applicants found any disclosure of translating an instruction into threaded code, nor have Applicants been able to find such disclosure anywhere else in Lindwer."

The examiner asserts that Lindwer teaches translating an instruction into threaded code since Lindwer will contain at least one thread. Single thread execution is well known.

Further, if the applicant should amend, the examiner believes that multithread execution would be an obvious modification.

25. The applicant has made the following argument:

> "Applicants further note that the rejection of Claim 2 (page 3, Item 5) appears to be incomplete. In particular, there appears to be text missing from this paragraph, and in view of this, there is no showing that the limitation of 'determining a number of operands on the operand stack after the instruction is executed . . .' is disclosed by the cited reference."

The examiner apologizes for any confusion, but upon further review of the rejection in question, the examiner does not see any discrepancy. All limitations and words in the claim are within the rejection.

Conclusion

26. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan P. Fiegle whose telephone number is 571-272-5534. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan P Fiegle
Examiner
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